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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Initial Release	May 06
1.1	Added Balanced and Unbalanced AES Setup	Sept 08
1.2	Updated features & specs. Cleaned up section 4.	Oct 08

WARNING

Never look directly into an optical fiber. Non-reversible damage to the eye can occur in a matter of milliseconds.

Do not hook up the 7707ADVT-HD DWDM and 7707ADVR-HD cards directly with a short fiber optic cable. The 7707ADVT-HD DWDM card produces +7dBm of power which will damage the receiver if connected directly.

Do not hook up the 7707ADVT-HD cards that output more than -7dBm of power (see 7707ADVT-HD specifications for output power of various laser types) and 7707ADVR-HD-H high sensitivity receiver cards directly with a short fiber optic cable. The 7707ADVT-HD cards that produce more than -7dBm of power will damage the receiver if connected directly.

1. OVERVIEW

The 7707ADVT-HD fiber transmitter extends one analog or digital video (HD-SDI or SD-SDI) over a single fiber optic link, accompanied by two stereo channels of high-quality analog audio, or four channels of digital AES audio. SD-SDI and/or analog video and audio signals are encoded into a single 270Mb/s signal for optical transport. HD-SDI video and audio signals are encoded into a single 1.485 Gb/s signal for optical transport. These standard data rates promote signal compatibility and efficient use of optical bandwidth. Analog or digital input signal types share the same auto-detecting input connections. The video input supports composite NTSC or PAL analog video, 1.485 Gb/s HD-SDI, 270Mb/s SD-SDI, SDTi, or DVB-ASI video.

In the case where digital HD or SD-SDI or SDTi video is detected at the input of the 7707ADVT-HD, this signal is transported transparently across the fiber with audio embedded into two of the four available audio groups. When composite NTSC or PAL analog video is detected at the input, this signal is encoded, with one group of audio into an SDTi data stream for transport across the fiber. DVB-ASI is transported transparently across the fiber, without audio. The companion 7707ADVR-HD provides conversion back to the original signal types.

Monitoring and control of card status and parameters is provided locally at the card-edge, or remotely via *Vista*LINK® capability. The optical output of the 7707ADVT-HD is available in 1310nm, 1550nm, or any one of up to sixteen CWDM wavelengths.

The fiber output is available in an assortment of optical wavelengths accommodating standard, CWDM or DWDM transmission schemes.

7707ADVT13-HD 1310 nm FP	-7dBm output, suitable for distances up to 50 Km
7707ADVT15-HD 1550 nm DFB	0dBm output, suitable for distances up to 75 Km

There are several versions with built in isolators specifically suited to coarse wave division multiplexing (CWDM) applications. These versions all have 0dBm output and are suitable for distances up to 75 Km.

7707ADVT27-HD 1270 nm DFB
7707ADVT29-HD 1290 nm DFB
7707ADVT31-HD 1310 nm DFB
7707ADVT33-HD 1330 nm DFB
7707ADVT35-HD 1350 nm DFB
7707ADVT37-HD 1370 nm DFB
7707ADVT43-HD 1430 nm DFB
7707ADVT45-HD 1450 nm DFB
7707ADVT47-HD 1470 nm DFB
7707ADVT49-HD 1490 nm DFB
7707ADVT51-HD 1510 nm DFB
7707ADVT53-HD 1530 nm DFB
7707ADVT55-HD 1550 nm DFB
7707ADVT57-HD 1570 nm DFB
7707ADVT59-HD 1590 nm DFB
7707ADVT61-HD 1610 nm DFB

There are several versions with built in isolators specifically suited to dense wave division multiplexing (DWDM) applications. The DWDM versions are suitable for distances >120 km @ 270 Mb/s (for DWDM applications contact factory).

7707ADVTDyyy-HD DWDM DFB laser output, yyy – ITU channel number

The 7707ADVT-HD occupies one card slots in the 3 RU frame, which will hold up to 15 modules or one card slot in the 1RU frame, which will hold up to three modules. One 7707ADVT-HD module can also be installed in the S7701 stand-alone enclosure.

Features:

- Single card fiber optic transmitter for one composite Analog, SDI or HD-SDI video and four analog or AES audio signals
- Auto-sensing (analog or digital) video and audio inputs
- Supports 525/625 line component 4:2:2 SDI @ 270Mb/s
- Supports HD (SMPTE 292M) video @ 1.485Gb/s
- Supports both NTSC and PAL analog video
- Supports Analog to Digital and Digital to Analog audio conversion
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Supports 32, 44.1, 48kHz AES audio inputs
- Dolby-E™ compatible
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and *Vista*LINK®
- *Vista*LINK® capability is available when modules are used with the 3RU 7700FR-C or 350FR portable frame and a 7700FC *Vista*LINK® Frame Controller module in slot 1 of the frame
- Adjustable gain equalization for analog video for up to 250m of Belden 1694A coaxial cable
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU G 694.2 compliant)
- DWDM wavelengths also available (ITU G.694.1 compliant)

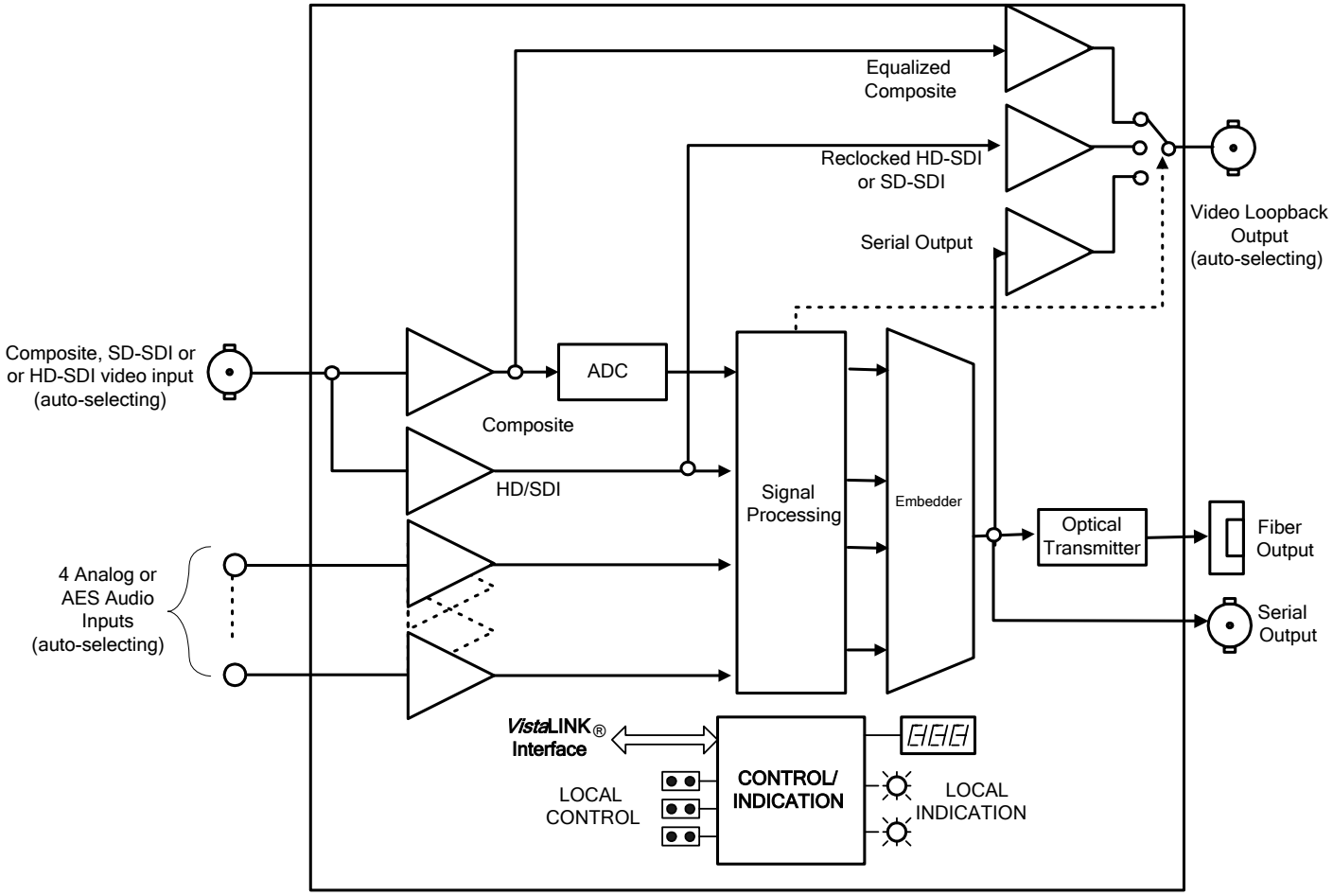

Figure 1-1: 7707ADVT-HD Block Diagram

2. INSTALLATION

Each 7707ADVT-HD module comes with a companion rear plate that has two BNC connectors, one terminal header with removable terminal block and one SC/PC (shown), ST/PC or FC/PC optical connector. For information on mounting the rear plate and inserting the module into the frame see the 7700FR chapter, section 3.

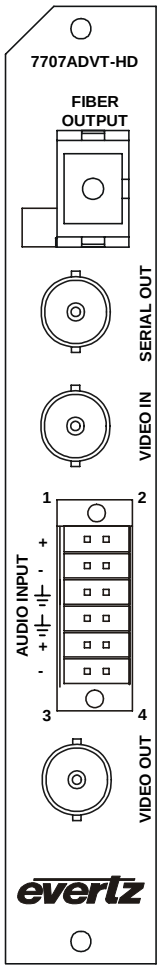

Figure 2-1: 7707ADVT-HD Rear Panel

VIDEO IN: Input BNC connector for serial digital video signals compatible with the SMPTE 292M, SMPTE 259M-C, or SMPTE 305M standards; or composite NTSC or PAL video signals. This input provides adaptive equalization for up to 300m of industry standard Belden 1694 cable at 270Mb/s or 100m 1.485 Gb/s. For analog signals, gain equalization is adjustable for up to 250m of Belden1694 or equivalent cable.

FIBER OUTPUT: The 7707ADVT-HD is available with a female SC/PC (shown), ST/PC or FC/PC type optical output connector. The optical output is a 1.485 Gb/s or 270Mb/s SDI or SDTi formatted signal, comprised of encoded video and audio data. In the case where digital video is selected at the input of the 7707ADVT-HD, this signal is transported transparently across the fiber, with audio embedded into one, or two of the four available audio groups. When composite analog video is selected at the input, this signal is encoded with audio into an SDTi data stream for transport across the fiber.

Do not hook up the 7707ADVT-HD DWDM and 7707ADVR-HD cards directly with a short fiber optic cable. The 7707ADVT-HD DWDM card produces +7dBm of power which will damage the receiver if connected directly.

Do not hook up the 7707ADVT-HD cards that output more than -7dBm of power (see 7707ADVT-HD specifications for output power of various laser types) and 7707ADVR-HD-H high sensitivity receiver cards directly with a short fiber optic cable. The 7707ADVT-HD cards that produce more than -7dBm of power will damage the receiver if connected directly.

AUDIO IN: Removable terminal block providing input connections for four balanced analog audio signals or four balanced AES audio signals. Terminal connections are described by the silkscreen labels, as depicted in Figure 2-1. User configuration selects audio inputs to be either analog or digital.

Balanced and unbalanced AES audio signals are connected as follows:

Balanced: Connect positive and negative audio signals to the corresponding positive and negative terminals of the 7707ADVT-HD. This connection arrangement yields a nominal 110Ω input impedance for balanced audio signals.

Unbalanced: Connect unbalanced audio signals to the positive input terminal of the 7707ADVT-HD. Leave the negative input terminal unconnected. This connection arrangement yields a nominal 75Ω input impedance for unbalanced audio signals.

VIDEO OUT: Pass-through output of the input electrical signal, reclocked in the case of a digital signal.

SERIAL OUT: Electrical version of the optical output transport stream. In the case where digital HD or SD-SDI or SDTi video is detected at the input of the 7707ADVT-HD, this signal will be an HD-SDI or SD-SDI signal with audio embedded into two of the four available audio groups. When composite NTSC or PAL analog video is detected at the input, this signal will be an SDTi data stream with one group of audio encoded. If DVB-ASI is detected at the input, this signal is reclocked and transparently passed through to the Serial Output.

2.1. CARE AND HANDLING OF OPTICAL FIBER

2.1.1. Safety

CLASS 1 LASER PRODUCT

Background colour: yellow
Triangular band: black
Symbol: black

2.1.2. Assembly

Assembly or repair of the laser sub-module is done only at Evertz facility and performed only by qualified Evertz technical personnel.

2.1.3. Labeling

Certification and Identification labels are combined into one label. As there is inadequate space on the product to place the label, it is reproduced here in the manuals.

- There is no date of manufacture on this label as it can be traced by bar code label placed on the Printed circuit board of each Evertz plug-in module
- The Model number is one of: 7707ADVT13-HD, 7707ADVT15-HD, 7707ADVTxx-HD, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61) 7707ADVTDyyy-HD (Dyyy represents ITU Grid Channel: D200, D210, D220, D230, D240, D250, D260, D270, D280, D290, D300, D310, D320, D330, D340, D350, D360, D370, D380, D390, D400, D410, D420, D430, D440, D450, D460, D470, D480, D490, D500, D510, D520, D530, D540, D550, D570, D580, D590, D600)

Figure 2-2: Reproduction of Laser Certification and Identification Label

2.1.4. Handling and Connecting Fibers

Never touch the end face of an optical fiber. Always keep dust caps on optical fiber connectors when not connected and always remember to properly clean the optical end face of a connector before making a connection.

The transmission characteristics of the fiber are dependent on the shape of the optical core and therefore care must be taken to prevent fiber damage due to heavy objects or abrupt fiber bending. Evertz recommends that you maintain a minimum bending radius of 5 cm to avoid fiber-bending loss that will decrease the maximum attainable distance of the fiber cable. The Evertz fiber optic modules come with lockout devices installed to prevent the user from damaging the fiber connector by installing a module into a slot in the frame that does not have a suitable rear plate. For further information about care and handling of fiber optic cable, see section 3 of the Fiber Optics System Design chapter of this manual.

3. SPECIFICATIONS

3.1. ANALOG VIDEO INPUT

Number of Inputs: 1
Standards: SMPTE 170M (NTSC), ITU-R 624-2 (PAL)
Connector: 1 BNC per IEC 61169-8 Annex A
Signal Quantization: 12 Bit
System Bandwidth: >5.5MHz
Input Level(max): 2V p-p
Gain Equalization: User adjustable up to 250m of Belden 1694A or equivalent
Input impedance: 75 Ohms
Return Loss: > 30 dB to 5.5 MHz
Signal/Noise Ratio: > 70 dB
Differential Gain: < 1.0 %
Differential Phase: < 0.7 Degree
Passband Ripple:
NTSC: < ± 0.1dB to 4.1 MHz
< ± 0.2dB to 5.5 MHz
PAL: < ± 0.1dB to 4.8 MHz
< ± 0.2dB to 5.8 MHz
Chroma/Luma Gain: 98% to 103%
Chroma/Luma Delay:
NTSC: < 5 ns
PAL: < 12 ns
Line Time Distortion: 1.2%

3.2. SERIAL VIDEO INPUT

Standard: SMPTE 259M-C (525 or 625 line component), SMPTE 305M (SDTi), DVB-ASI (without separate audio), SMPTE 292M (HD)
Connector: 1 BNC per IEC 61169-8 Annex A
Equalization: Automatic to 300m @ 270 Mb/s and 100m @1.485 Gb/s with Belden 1694A or equivalent cable
Return Loss: > 15dB up to 1.485Gb/s

3.3. ANALOG VIDEO OUTPUT

Standard: Same as Analog Video Input
Number of Outputs: 1
Connector: 1 BNC per IEC 61169-8 Annex A
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: > 30dB to 5.5MHz

3.4. SERIAL VIDEO OUTPUT

Number of Outputs:	2, (1 loopback, 1 serial)
Connector:	1 BNC per IEC 61169-8 Annex A
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal @ 270 Mb/s < 270ps @ 1.485Gb/s
Overshoot:	< 10% of amplitude
Return Loss:	> 15dB at 270Mb/s
Wide Band Jitter:	< 0.2 UI

3.5. ANALOG AUDIO INPUTS

Number of Inputs:	4
Type:	Balanced analog audio
Connector:	12-pin removable terminal block
Input impedance:	High Impedance (> 20kΩ)
Freq. Response:	±0.1dB, 20Hz to 20kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.:	±1°
SNR (weighted):	> 85dB
Max. Audio Input Level:	+24dBu
Signal Quantization:	24 Bits

3.6. AES AUDIO INPUTS

Number of Inputs:	4 (auto-sensing for balanced or unbalanced input)
Standard:	
Unbalanced AES:	SMPTE 276M
Balanced AES:	AES3-1992
Other:	Dolby-E™ compatible
Connector:	12-pin removable terminal block
Input Return Loss:	> 15dB (1MHz to 6MHz)
Signal Level:	
Unbalanced:	1.2V p-p ±0.1V
Balanced:	1 to 7 Vp-p
Equalization:	
Unbalanced:	1500m of Belden 1694A cable
Balanced:	450m of Belden 1800D cable
Resolution:	Up to 24 bits
Sampling Rate:	32, 44.1, 48kHz
Impedance:	
Unbalanced:	75Ω
Balanced:	110Ω

3.7. OPTICAL OUTPUTS

Number of Outputs: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14dB
Rise and Fall Time: 200ps nominal
Fiber Size: 9mm core/125mm overall
Wavelengths:
- **Standard:** 1310nm, 1550nm (nominal)
- **CWDM:** See Ordering Information
- **DWDM:** See Ordering Information

Output Power:
- **1310nm FP (Standard):** -7dBm ±1dBm
- **1550 & CWDM DFB:** 0dBm ±1dBm
- **DWDM DFB:** +7dBm ±1dBm

3.8. SYSTEM PERFORMANCE

Video Input to Output Delay: < 1.5µs
Audio to Video delay: < 1µs

3.9. ELECTRICAL

Voltage: +12V DC
Power: 16W (Non DWDM)
19W (DWDM)

3.10. PHYSICAL

7700 or 7701 frame mounting:
- **Number of slots:** 1

3.11. COMPLIANCE

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

4. STATUS INDICATORS AND DISPLAYS

The 7707ADVT-HD has 5 LED Status indicators and a 4 digit alphanumeric display on the front card edge to show operational status of the card at a glance. The card edge pushbutton and toggle-switch are used to select various indications to the alphanumeric display. Figure 4-1 shows the location of the LEDs and card edge controls.

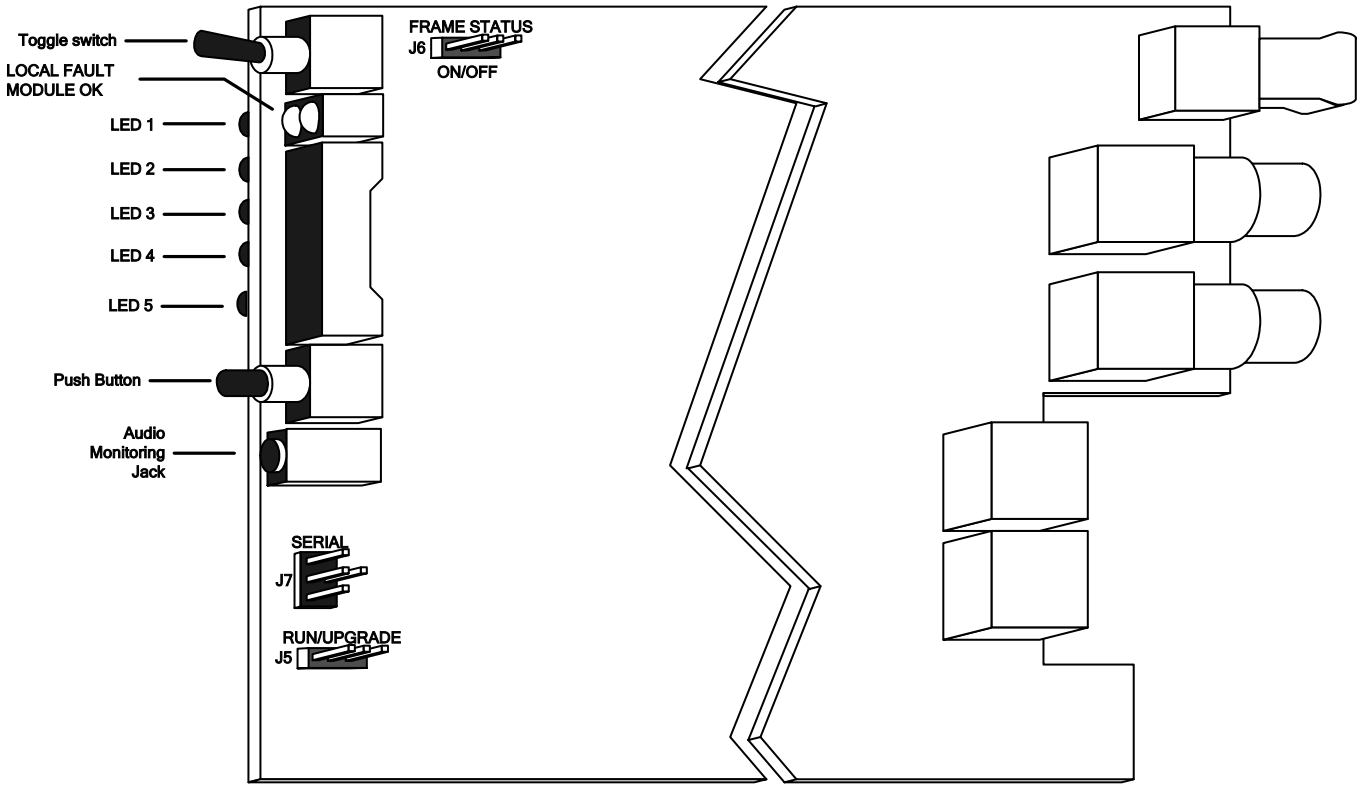

Figure 4-1: Location of Jumpers and Card Edge Controls

4.1. STATUS INDICATOR LEDS

Two large LEDs at the front card-edge indicate operational health of the module:

LOCAL / FAULT	RED	Laser Fault or Disabled due to Laser Discontinuous Mode
	GREEN	Laser Ok and Enabled
LED1	RED	Video Error
	GREEN	Video Present
	OFF	Video Loss
LED2	RED	Audio 1 Input Error
	GREEN	AES 1 or Analog 1 Present
	OFF	No Input Detected
LED3	RED	Audio 2 Input Error
	GREEN	AES 2 or Analog 2 Present
	OFF	No Input Detected
LED4	RED	Audio 3 Input Error
	GREEN	AES 3 or Analog 3 Present
	OFF	No Input Detected
LED5	RED	Audio 4 Input Error
	GREEN	AES 4 or Analog 4 Present
	OFF	No Input Detected

4.2. CARD EDGE MENU CONTROL

Control functions are implemented via the 4-digit dot-matrix display located on the front of the module. The card-edge pushbutton and toggle-switch are used to navigate through the display menu.

Pressing the pushbutton advances the display to the next menu level. The toggle-switch may then be used to move up or down through selections of that menu level. Select BACK to return to previous menu level.

If a specific menu selection has a configuration value associated with it, then this may be changed using the toggle switch. Pressing the pushbutton will apply the displayed value and return you to the previous menu level.

The most recent user selection will be maintained in non-volatile memory in the event of power loss to the module.

The card edge menu system is divided into 2 parts:

CTRL	Control is used to configure the card.
STAT	Status is to check status of card parameters via card edge.

4.3. CTRL – (CONTROL) MENU STRUCTURE

VID	Video Setup
AUD	Audio Setup
LASR	Laser Continuous or Discontinuous operation
DISP	Orientation of the Text on the Card Edge Display
FRST	Factory Reset

4.3.1. Video Setup – (VID)

ANLG	Analog Video Calibration Menu
OSTD	Output Video Standard on Input Video Loss
ADVT	ADVT Control Packet Embed
EDH	EDH Insertion enable
RCLK	Reclock Video Output Source selection

4.3.1.1. Analog Video Equalization

VID
- *ANLG*
  - *EQ*
    - *0-100*

The Equalization applied is intended to compensate of high frequency signal loss over cable.

This value is a 0-100% range.

Default Menu Value is 20%

4.3.1.2. Video Output Control

VID
- *OSTD*
  - *AUTO*
  - *N270*
  - *P270*
  - *ASI*
  - *NTSC*
  - *PAL*
  - *1080i/60*
  - *1080i/59.94*
  - *1080i/50*
  - *1035i/60*
  - *1035i/59.94*
  - *1080i/48*
  - *1080i/47.96*
  - *720p/60*
  - *720p/59.94*

Output Video Standard on loss of Input Video.

AUTO	The last valid input standard will be used.
N270	Video output standard is N270.
P270	Video output standard is P270.
ASI	Video output standard is ASI.
NTSC	Video output standard is NTSC.
PAL	Video output standard is PAL.
1080i/60	1080i/60 or 1080p/30sF standard
1080i/59.94	1080i/59.94 or 1080p/29.97sF standard
1080i/50	1080i/50 or 1080p/25sF standard
1035i/60	1035i/60 standard
1035i/59.94	1035i/59.94 standard
1080i/48	1080i/48 or 1080p/24sF standard
1080i/47.96	1080i/47.96 or 1080p/23.98sF standard
720p/60	720p/60 standard
720p/59.94	720p/59.94 standard

4.3.1.3. Control Packet ON/OFF

VID
ADVT
EMBD
ON/OFF

Turns on/off the Control Packet System.

Default Menu Value is ON. This must be on for Analog video transport.

4.3.1.4. DID Assignment

VID
ADVT
DID
50-5F

Sets the DID used in the ANC packet. 50-5F (Hex) are unassigned user DIDs in the standard.

Default Menu Value is 54.

4.3.1.5. HANC Line Embed

VID
ADVT
LINE
1-525 (625)

Controls the line on which the packet will be embedded (in HANC).

The default for N270 or HD is 10, for P270 is 6.

Maximum value when in N270 or HD mode is 525 and in P270 mode is 625.

4.3.1.6. EDH Insertation ON/OFF

VID
EDH
ON/OFF

This system recalculates CRC values and updates EDH flag systems when enabled. Setting this control to OFF will disable EDH insertation only when no EDH is present on the input. If EDH is present on the video input, then this value is forced ON.

4.3.1.7. Reclock Video Source

VID
RCLK
INPT/TRAN

This control allows the user to select the video source on the ADVT reclock video output.

INPT The video output is a reclock version of the input Video.
TRAN The video output is a copy of the fiber transport video.

This video will have the new embedded audio groups, control packets and EDH correction etc.

4.3.2. Audio Setup (AUD)

MODE	Audio Mode Set
EMBD	Audio Embedder Control
DGTL	Digital Audio Control
ANLG	Analog Audio Control
JACK	Audio Monitoring Jack Control

4.3.2.1. Set Audio Mode

AUD
MODE
DGTL
ANLG
AUTO

This menu allows the user to manually select upstream audio type, or auto detect incoming audio type.

DGTL Digital Audio Input
ANLG Analog Audio Input
AUTO Auto detection of audio input type.

4.3.2.2. Audio Embedder 1 Controls

AUD
EMBD
EMB1
OFF
GRP1
GRP2
GRP3
GRP4
AUTO

Controls Audio Embedder 1.

OFF Audio Embedder is disabled.
GRP1 Audio is embedded to group 1.
GRP2 Audio is embedded to group 2.
GRP3 Audio is embedded to group 3.
GRP4 Audio is embedded to group 4.
AUTO Audio is embedded to the first available unused audio group.

If no groups are available and CTRL->AUD->OVRW is ON then the audio embedder is enabled and set to Group 3.

4.3.2.3. Audio Embedder 2 Controls

AUD
EMBD
EMB2
OFF
GRP1
GRP2
GRP3
GRP4
AUTO

Controls Audio Embedder 2.

OFF Audio Embedder is disabled.
GRP1 Audio is embedded to group 1.
GRP2 Audio is embedded to group 2.
GRP3 Audio is embedded to group 3.
GRP4 Audio is embedded to group 4.
AUTO Audio is embedded to the first available unused audio group.

If no Groups are available and CTRL->AUD->OVRW is ON then the audio embedder is enabled and set to Group 4.

4.3.2.4. SDTi Audio Bypass Control

AUD
EMBD
SDTI
ON/OFF

Audio Embedders function when SDTI detected on SDI input.

ON Audio Embedders will function normally.

OFF Audio Embedders will be disabled when SDTI headers are detected on the incoming SDI video.

4.3.2.5. Overwrite Existing Audio Groups

AUD
EMBD
OVRW
ON/OFF

Audio Embedder function when embedded audio is present on input video.

ON Audio groups which are detected on the input are available to be overwritten by the ADVT embedders.

OFF Audio groups which are detected on the input are unavailable to be overwritten by the ADVT embedders.

4.3.2.6. Sample Rate Conversion ALL AUDIO

When set to ON, Digital Audio inputs are routed through the sample rate converters on board. This synchronizes the incoming audio rate to the outgoing video rate. AES C and U bits are buffered internally and reinserted into the embedded AES streams.
When set to OFF, digital audio is directly routed to the audio embedder systems. This is used to maintain compressed audio data.

AUD
DGTL
SRC
ALL
ON/OFF

ON Enables Sample-Rate Converters for all digital audio inputs.
OFF Disables Sample-Rate Converters for all digital audio inputs.

4.3.2.7. Sample Rate Conversion AUD 1

AUD
DGTL
SRC
AUD1
ON/OFF

ON Enables Sample-Rate Converters for digital audio input 1.
OFF Disables Sample-Rate Converters for digital audio input 1.

4.3.2.8. Sample Rate Conversion AUD 2

AUD
DGTL
SRC
AUD2
ON/OFF

ON Enables Sample-Rate Converters for digital audio input 2.
OFF Disables Sample-Rate Converters for digital audio input 2.

4.3.2.9. Sample Rate Conversion AUD 3

AUD
DGTL
SRC
AUD3
ON/OFF

ON Enables Sample-Rate Converters for digital audio input 3.
OFF Disables Sample-Rate Converters for digital audio input 3.

4.3.2.10. Sample Rate Conversion AUD 4

AUD
DGTL
SRC
AUD4
ON/OFF

ON Enables Sample-Rate Converters for digital audio input 4.
OFF Disables Sample-Rate Converters for digital audio input 4.

4.3.2.11. Analog Audio Level control (dBu)

AUD
ANLG
LVL
16 to 24

Sets the full scale analog audio signal level at card input. Increments in 0.1 dBu Steps.

4.3.2.12. Analog Audio Presence Detection

AUD
ANLG
DET
LVL
0 to -60

Analog Audio will be detected when an analog audio sample arrives above the set LVL threshold. Entered in dBU.

4.3.2.13. Analog Audio Presence Detection Time Duration

AUD
ANLG
DET
DUR
1 to 20

The time, in seconds, for which analog audio must be below the above LVL threshold for audio to be considered not present.

Default Menu Value is 10.

4.3.2.14. Analog Audio Presence Detection Enable/Disable

AUD
ANLG
DET
ENB
ON/OFF

When set to OFF, all Analog Audio Inputs are considered present.
This control allows the user to disable constant alarms/traps during media sessions with silent periods in audio sources.

4.3.2.15. Audio Monitor Jack Source Selection

AUD	JACK	SRCE
		OFF
		A1+2
		A3+4
		AES1
		AES2
		AES3
		AES4

Selects the audio source to be monitored by the Audio Monitor Jack.

OFF No audio will be present on Audio Monitor Jack.
A1+2 Audio Jack will be sourced from Analog Audio input 1 and 2.
A3+4 Audio Jack will be sourced from Analog Audio input 3 and 4.
AES1 Audio Jack will be sourced from Digital Audio Input 1.
AES2 Audio Jack will be sourced from Digital Audio Input 2.
AES3 Audio Jack will be sourced from Digital Audio Input 3.
AES4 Audio Jack will be sourced from Digital Audio Input 4.

4.3.2.16. Audio Jack Volume Control

AUD	VOL
	0 - 64

Allows the user to control the volume output of the card edge Audio Monitor jack.

4.3.3. Laser Continuous or Discontinuous operation

LASR
CONT
DISC

Selects the action of the Laser when there is no video present on the input.

DISC The laser will turn off if no video or audio input is present.

CONT The laser will continue transmitting a freewheel video signal as set by Video Output Standard.

4.3.4. Orientation of the Text on the Card Edge Display (DISP)

DISP
VERT
HORZ

Allows the user to set a horizontal or vertical orientation for the card edge display messages.

4.3.5. Factory Reset (FRST)

FRST
NO
YES

Allows the user to perform factory reset.

4.4. STAT – (STATUS) MENU STRUCTURE

VID	Video Status
AUD	Audio Status
VER	Displays Firmware Version

4.4.1. Video Status Card Edge Monitoring

INP	Video Input Detect
OUT	Output Video Standard
EQ	Digital Video Input Equalization
SDTI	SDTI Input Detect
EDH	EDH Input Detect

4.4.1.1. Video Input Detect

VID
INP
N270
P270
ASI
NTSC
PAL
1080i/60
1080i/59.94
1080i/50
1035i/60
1035i/59.94
1080i/48
1080i/47.96
720p/60
720p/59.94
ERR
LOS

Reports Standard of recognized video source.

N270	Video source is 525 SDI.
P270	Video source is 625 SDI.
ASI	Video source is ASI.
NTSC	Video source is NTSC composite.
PAL	Video source is PAL composite.
1080i/60	1080i/60 or 1080p/30sF standard
1080i/59.94	1080i/59.94 or 1080p/29.97sF standard
1080i/50	1080i/50 or 1080p/25sF standard
1035i/60	1035i/59.94 standard
1035i/59.94	1035i/59.94 standard
1080i/48	1080i/48 or 1080p/24sF standard
1080i/47.96	1080i/47.96 or 1080p/23.98sF standard
720p/60	720p/60 standard
720p/59.94	720p/59.94 standard
ERR	Indicates that there is an EDH error.
LOS	Indicates that no valid video signal is present on the input.

4.4.1.2. Output Video Standard

VID
OUT
N270
P270
ASI
NTSC
PAL
1080i/60
1080i/59.94
1080i/50
1035i/60
1035i/59.94
1080i/48
1080i/47.96
720p/60
720p/59.94

Current Output Video Standard.

N270	Video Mode is 525 SDI.
P270	Video Mode is 625 SDI.
ASI	Video Mode is ASI.
NTSC	Video Mode is NTSC composite.
PAL	Video Mode is PAL composite.
1080i/60	1080i/60 or 1080p/30sF standard
1080i/59.94	1080i/59.94 or 1080p/29.97sF standard
1080i/50	1080i/50 or 1080p/25sF standard
1035i/60	1035i/59.94 standard
1035i/59.94	1035i/59.94 standard
1080i/48	1080i/48 or 1080p/24sF standard
1080i/47.96	1080i/47.96 or 1080p/23.98sF standard
720p/60	720p/60 standard
720p/59.94	720p/59.94 standard

4.4.1.3. Digital Video Input Equalization

VID
EQ
%

Input Video Equalization Strength.

The 7707ADVT-HD applies equalization to the incoming digital video signal to restore high frequency components lost due to cable transmission. The level of equalization applied is expressed as a percentage of the maximum amount the equalizer is capable of applying.

4.4.1.4. SDTi Input Detect

VID
SDTI
PSNT
LOS

PSNT SDTI Headers are detected on input.
LOS SDTI Headers are not detected on video.

4.4.1.5. EDH Input Detect

VID
EDH
PSNT
LOS

PSNT EDH packets are detected on input.
LOS EDH packets were not detected on video input.

4.4.2. Audio Status Card Edge Monitoring

MODE	Audio Mode Report
EMB1	Displays the current status of Audio Embedder 1
EMB2	Displays the current status of Audio Embedder 2
DIG1	Digital Audio 1 Input Status
DIG2	Digital Audio 2 Input Status
DIG3	Digital Audio 3 Input Status
DIG4	Digital Audio 4 Input Status
ALG1	Analog Audio Input 1 Status
ALG2	Analog Audio Input 2 Status
ALG3	Analog Audio Input 3 Status
ALG4	Analog Audio Input 4 Status

4.4.2.1. Audio Mode Report

AUD
MODE
DGTL
ANLG

Displays current audio mode.

DGTL Module is in Digital Audio Mode.
ANLG Module is in Analog Audio Mode.

4.4.2.2. Displays the current status of Audio Embedder 1

AUD
EMB1
GRP1
GRP2
GRP3
GRP4
OFF

This menu displays the current status of Audio Embedder 1.

GRP1 Embedder 1 is currently assigned to embed on Audio Group 1.
GRP2 Embedder 1 is currently assigned to embed on Audio Group 2.
GRP3 Embedder 1 is currently assigned to embed on Audio Group 3.
GRP4 Embedder 1 is currently assigned to embed on Audio Group 4.
OFF Embedder 1 is disabled.

4.4.2.3. Displays the current status of Audio Embedder 2

AUD	
EMB2	
GRP1	**GRP1** Embedder 2 is currently assigned to embed on Audio Group 1.
GRP2	**GRP2** Embedder 2 is currently assigned to embed on Audio Group 2.
GRP3	**GRP3** Embedder 2 is currently assigned to embed on Audio Group 3.
GRP4	**GRP4** Embedder 2 is currently assigned to embed on Audio Group 4.
OFF	**OFF** Embedder 1 is disabled.

This menu displays the current status of Audio Embedder 2.

4.4.2.4. Digital Audio 1 Input Status

AUD	
DIG1	
48K	**48K** AES Input has a sample rate of 48khz
44K	**44K** AES Input has a sample rate of 44khz
32K	**32K** AES Input has a sample rate of 32khz
UNKN	**UNKN** Displayed when the AES input is a non-standard sample-rate.
LOS	**LOS** Displayed when AES Input 1 is not present.

DIG2, DIG3, and DIG4 are configured the same way as DIG1. For simplicity, only DIG1 has been shown.

4.4.2.5. Analog Audio Input 1 Status

AUD	
ALG1	
PSNT	**PSNT** Analog Audio 1 is present.
SLNT	**SLNT** Analog Audio 1 is not detected.

ALG2, ALG3, and ALG4 are configured the same way as ALG1. For simplicity, only ALG1 has been shown.

4.4.3. Firmware Version

VER	VER x.x BUILD xxx Software version. Character string scrolls across four digit display

4.5. UPGR – (UPGRADE) MENU STRUCTURE

UPGR	
NO	**NO** Module stays in run mode.
YES	**YES** Puts module in upgrade mode.

This menu allows the user to configure the module for firmware upgrades.

5. JUMPER CONTROLS

5.1. SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED BY THE GLOBAL FRAME STATUS

The FRAME STATUS jumper J6 determines whether local faults (as shown by the Local Fault indicator) will be connected to the 7700FR frame's global status bus.

FRAME STATUS: To monitor faults on this module with the frame status indicators (on the Power Supply FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position. (Default)

When this jumper is installed in the Off position local faults on this module will not be monitored.

5.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper J5 is used when firmware upgrades are being done to the module. For normal operation it should be installed in the *RUN* position. See the *Upgrading Firmware* section of this manual for more information.

To upgrade the firmware in the module unit pull it out of the frame. Move the UPGRADE jumper into the *UPGRADE* position. Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the SERIAL header (J7) at the card edge. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* section of this manual. Once the upgrade is completed, remove the module from the frame, move the UPGRADE jumper into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

6. *VISTA*LINK® REMOTE MONITORING/CONTROL

6.1. WHAT IS *VISTA*LINK®?

*Vista*LINK® is Evertz's remote monitoring and configuration platform which operates over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. *Vista*LINK® provides centralized alarm management, which monitors, reports, and logs all incoming alarm events and dispatches alerts to all the VLPro Clients connected to the server. Card configuration through *Vista*LINK® PRO can be performed on an individual or multi-card basis using simple copy and paste routines, which reduces the time to configure each module separately. Finally, *Vista*LINK® enables the user to configure devices in the network from a central station and receive feedback that the configuration has been carried out.

There are 3 components of SNMP:

1. An SNMP manager, also known as a Network Management System (NMS), is a computer running special software that communicates with the devices in the network. Evertz VL-Fiber demo Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz *Vista*LINK® enabled fiber optic products.

2. Managed devices, (such as 7707EO and 7707OE cards), each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz *Vista*LINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC *Vista*LINK® frame controller module, which serves as the Agent.

3. A virtual database, known as the Management information Base (MIB), lists all the variables being monitored which both the Manager and Agent understand. Please contact Evertz for further information about obtaining a copy of the MIB for interfacing to a third party Manager/NMS.

For more information on connecting and configuring the *Vista*LINK® network, see the 7700FC Frame Controller chapter.

6.2. *VISTA*LINK® MONITORED PARAMETERS

The following parameters can be remotely monitored via the *Vista*LINK® interface.

Parameter	Description
Card Type	Indicates 7707ADVT-HD card type.
Audio Mode Status	Indicates whether the audio mode is analog or digital.
Analog Audio Input Status 1 to 4	Indicates presence of analog audio at the input.
Digital Audio Input Status 1 to 4	Indicates presence of digital audio at the input.
Audio Embedder status 1	Indicates whether embedder 1 is on or off.
Audio Embedder status 2	Indicates whether embedder 2 is on or off.
Video Input Status	Indicates video standard of the input signal.
Output Video Standard	Indicates video standard of the output signal.
Digital Video Equalization	Indicates equalization strength in %.
SDTi Input Detect	Indicates whether SDTi signal is present or not.
EDH Input Detect	Indicates whether EDH packets are detected or not on the input.

Table 6-1: *Vista*LINK® Monitored Parameters

6.3. *VISTA*LINK® CONTROLLED PARAMETERS

The following parameters can be remotely controlled via the *Vista*LINK® interface.

Parameter	Description
Audio Mode	Sets audio mode to auto, digital or analog.
Audio Embedder Overwrite Enable	Audio groups which are detected on the input are available to be overwritten by the ADVT-HD when set to On.
Audio Embedder 1	Controls audio embedder 1.
Audio Embedder 2	Controls audio embedder 2.
Video Standard On Loss	Sets output video standard on input video or link loss. When set to AUTO, the last valid input standard will be used to determine the output video standard.
Control Packet Enable	Controls embedding of the control packet within the HANC.
Control Packet DID	Sets the DID looked for in the HANC.
Control Packed Line Number	Controls the line on which the packet will be embedded (in hanc). The line numbers available for setting are from 1 to 625 for P270 and 1 to 525 for other standards, in steps of 1.
EDH Insertion Enable	Enables or disables EDH insertion. Setting this control to OFF will disable EDH insertation only when no EDH is present on the input.
Laser Mode	Sets laser into continuous or discontinuous mode.
Analog Video Equalization	Sets analog video equalization from 0% to 100% in steps of 1%.
Digital Video Equalization Threshold	Sets the equalization level that triggers an alarm if the digital video signal degrades.
Analog Audio Input Level	Sets analog audio level from 16dBu to 24dBu in steps of 0.1 dBu.
Analog Audio Detection Level	Sets analog audio level detection form –60dBu to 0dBu in steps of 10dBu.
Analog Audio Silence Duration	Sets analog audio silence duration from 1sec to 20sec in steps of 1 second.
Analog Audio Detection Enable	Enables or disables analog audio detection.
Digital Audio Sample Rate Converter 1 to 4	Enables or disables sample rate conversion for digital audio 1 to 4.

Table 6-2: *Vista*LINK® Controlled Parameters

6.4. *VISTA*LINK®TRAPS

The following traps can be remotely enabled and monitored through *Vista*LINK® interface.

Trap	Description
Input Video Loss	Triggers when there is a loss of input video signal.
Input Video Error	Triggers when there is an error in input video signal.
Laser Fault	Triggers when there is a laser fault.
Audio Input 1 to 4 Loss	Triggers when loss of audio signal 1 to 4 happens.
Audio Input 1 to 4 Error	Triggers when an error of audio signal 1 to 4 happens.

Table 6-3: *Vista*LINK®Traps

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